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Stability in higher-derivative matter fields theories

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Abstract

© 2016, The Author(s).We discuss possible instabilities in higher-derivative matter field theories. These theories have two free parameters β1 and β4. By using a dynamical system approach we explicitly demonstrate that for the stability of Minkowski space in an expanding universe we need the condition β4< 0. By using the quantum field theory approach we also find an additional restriction for the parameters, β1>-13β4, which is needed to avoid a tachyon-like instability.

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